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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,583	03/01/2004	David Wiekhorst	65823-0540	9881

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EXAMINER	
LEE, JINHEE J	

ART UNIT	PAPER NUMBER
2831	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/790,583	WIEKHORST ET AL.	
	Examiner	Art Unit	
	Jinhee J. Lee	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *77-114* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *77-114* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0604,0205*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. No claims are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group (all prior claims were cancelled by the applicant), there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 0205.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Abstract is too short.

Claim Objections

3. Claim 104 is objected to because of the following informalities:

Claim 104 line 3, the phrase "the plurality of twisted pairs" has an error. Examiner suggests "the four twisted pairs" instead to avoid insufficient antecedent rejection.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 77-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotthaus et al. (US004745238) in view of Arpin et al. (US005563377A).

Re claim 77, Kotthaus et al. substantially discloses a cable (40) having a central axis, the cable comprising:

a jacket (5, casing) defining a central passage (unnumbered) in which the conductors (3) are located, the jacket including legs (7, radial walls) that project inwardly toward the central axis of the cable, the jacket defining channels (8, air chambers) located between the legs, the channels having open sides that face inwardly toward the central axis, the channels having lengths that run along a length of the jacket (see

figures 1-3). Kotthaus et al. does not explicitly disclose a plurality of twisted pairs of conductors; and the number of channels being greater than the number of twisted pairs of conductors (Kotthaus et al. states that the conductor...can be of any desired construction, see column 2 lines 20-21 according to the numbering in the middle). However, Arpin et al. teaches of a plurality of twisted pairs of conductors (16, four pairs of twisted conductors); and the number of channels (5 or 6 as disclosed in figures 1-3 in Kotthaus et al.) being greater than the number of twisted pairs of conductors (see figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the four twisted pairs of conductors of Arpin et al. with the device of Kotthaus et al. in order to provide a telecommunication cable.

Re claims 78, 87, 90 and 101, note that the device of Arpin et al. teaches, wherein the plurality of twisted pairs of conductors includes 4 twisted pairs of conductors (see figure 1).

Re claims 79, 88, 91 and 102, note that the device of Arpin et al. teaches, wherein each of the conductors is covered by a separate insulation layer (column 2 lines 60-61).

Re claim 80, note that the device of Arpin et al. teaches, wherein the twisted pairs of conductors generally do not occupy the channels.

Re claims 81 and 109, the device of Kotthaus et al. modified by Arpin et al. discloses the claimed invention except, wherein the channels each have a cross-sectional area of at least .00002 square inches. It would have been an obvious matter of design choice to have the channels each have a cross-sectional area of at least

.00002 square inches in order to provide differently proportioned insulation, since such a modification would have involved a mere change in the dimensions or proportion of a component. A change in dimensions or proportion is generally recognized as being within the level of ordinary skill in the art. *In Gardner v. TEC Systems, Inc.*, 725 F .2d 1338, 220 USPQ 777 (Fed. Cir. 1984).

Re claims 82 and 110, the device of Kotthaus et al. modified by Arpin et al. discloses the claimed invention except, wherein the jacket has a thickness less than about .030 inches. It would have been an obvious matter of design choice to have the jacket with a thickness less than about .030 inches in order to provide differently proportioned insulation, since such a modification would have involved a mere change in the dimensions or proportion of a component. A change in dimensions or proportion is generally recognized as being within the level of ordinary skill in the art. *In Gardner v. TEC Systems, Inc.*, 725 F .2d 1338, 220 USPQ 777 (Fed. Cir. 1984).

Re claims 83 and 111, note that the device of Kotthaus et al. discloses, wherein the jacket comprises a plastic material (see column 2 lines 27-28).

Re claims 84 and 112, Kotthaus et al./Arpin et al. discloses the claimed invention except that the plastic material includes a fluoropolymer. Examiner takes official notice that the plastic material including a fluoropolymer is well known material for use in the electrical applications. Note that Arpin et al. teaches that it is conventional to use fluoropolymer as the jacket material (see column 1 lines 27-28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the plastic material that includes a fluoropolymer, since it has been held to be within the

general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Re claims 85 and 113, note that the device of Kotthaus et al. discloses, wherein the plastic material includes polyvinyl chloride (see column 2 lines 34-35).

Re claim 86, Kotthaus et al. substantially discloses a cable (40) comprising: a jacket (5, casing) within which the conductors (3) are located, the jacket defining interior air channels (8, air chambers) each having an open side (unnumbered side that faces the cable 2) that faces inwardly toward a central axis of the jacket, the channels having lengths that run along a length of the jacket (see figures 1-3). Kotthaus et al. does not explicitly disclose a plurality of twisted pairs of conductors; and the number of channels being greater than the number of twisted pairs of conductors (Kotthaus et al. states that the conductor...can be of any desired construction, see column 2 lines 20-21 according to the numbering in the middle). However, Arpin et al. teaches of a plurality of twisted pairs of conductors (16, four pairs of twisted conductors); and the number of channels (5 or 6 as disclosed in figures 1-3 in Kotthaus et al.) being greater than the number of twisted pairs of conductors (see figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the four twisted pairs of conductors of Arpin et al. with the device of Kotthaus et al. in order to provide a telecommunication cable.

Re claim 89, Kotthaus et al. substantially discloses a cable comprising:

a plurality of data transmission conductors (3); and

a jacket (5, casing) within which the plurality data transmission conductors is located, the jacket defining interior channels (8, air chambers) that are circumferentially spaced relative to one another about the plurality of data transmission conductors, the channels each having an open side (unnumbered) that faces inwardly toward a central axis of the jacket and the data transmission conductors generally not occupying the channels. Kotthaus et al. does not explicitly disclose a plurality of twisted pairs of conductors (Kotthaus et al. states that the conductor...can be of any desired construction, see column 2 lines 20-21 according to the numbering in the middle). However, Arpin et al. teaches of a plurality of twisted pairs of conductors (16, four pairs of twisted conductors) (see figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the four twisted pairs of conductors of Arpin et al. with the device of Kotthaus et al. in order to provide a telecommunication cable.

Re claim 92, note that Arpin et al. teaches, wherein number of channels (5 or 6 according to figures 1-3 of Kotthaus et al) is greater than the number of twisted pairs (four) of data transmission conductors (see figure 1).

Re claim 93, Kotthaus et al. modified by Arpin et al. substantially discloses a cable as set forth in claim 89 above except wherein the channels are generally rectangular in cross-sectional shape. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the channels with rectangular cross-sectional shape for air insulation, since it has been held that more

than mere change in shape or configuration is necessary for patentability. *In re Dailey,* 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Re claims 94 and 105, the cable of Kotthaus et al. as modified by teachings of Arpin et al. discloses the claimed invention except, wherein each of the channels has a cross-sectional area less than about 30 percent of a total cross-sectional area of the jacket. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have each of the channels with a cross-sectional area less than about 30 percent of a total cross-sectional area of the jacket in order to optimize insulation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382..

Re claim 95, the cable of Kotthaus et al. as modified by teachings of Arpin et al. discloses the claimed invention (inner portion being 7 and 8, outer portion being 6, see figure 1 of Kotthaus et al.) except the inner portion including the channels such that a composite density of the inner portion is less than a composite density of the outer portion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the inner portion including the channels such that a composite density of the inner portion is less than a composite density of the outer portion in order to optimize insulation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382.

Re claims 96 and 106, the cable of Kotthaus et al. as modified by teachings of Arpin et al. discloses the claimed invention except wherein a signal speed at the inner portion is at least 2% greater than a signal speed at the outer portion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the signal speed at the inner portion at least 2% greater than a signal speed at the outer portion in order to optimize insulation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382.

Re claim 97 and 107, the cable of Kotthaus et al. as modified by teachings of Arpin et al. discloses the claimed invention except wherein a signal speed at the inner portion is at least 5% greater than a signal speed at the outer portion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the signal speed at the inner portion at least 5% greater than a signal speed at the outer portion in order to optimize insulation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382.

Re claim 98 and 108, the cable of Kotthaus et al. as modified by teachings of Arpin et al. discloses the claimed invention except wherein a signal speed at the inner portion is at least 10% greater than a signal speed at the outer portion. It would have been obvious to one having ordinary skill in the art at the time the invention was made

to have the signal speed at the inner portion at least 10% greater than a signal speed at the outer portion in order to optimize insulation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382.

Re claims 99 and 103, the cable of Kotthaus et al. as modified by teachings of Arpin et al. discloses the claimed invention except wherein the plurality of twisted pairs of data transmission conductors are twisted around each other to define a core having diameter less than about .25 inches. It would have been an obvious matter of design choice to use the plurality of twisted pairs of data transmission conductors that are twisted around each other to define a core having diameter less than about .25 inches. in order to provide a small cable, since such a modification would have involved a mere change in the dimensions or proportion of a component. A change in dimensions or proportion is generally recognized as being within the level of ordinary skill in the art. *In Gardner v. TEC Systems, Inc.*, 725 F .2d 1338, 220 USPQ 777 (Fed. Cir. 1984).

Re claim 100, Kotthaus et al. substantially discloses a cable comprising:

a plurality of data transmission conductors (3); and

a jacket (5, casing) defining an interior passage (unnumbered) that extends along a length of the jacket, the interior passage including a central region (unnumbered holding 2 for example) and a peripheral region, the plurality of data transmission conductors being positioned within the central region, the peripheral region of the interior passage including a plurality of air channels (8, air chambers) that are

circumferentially spaced relative to one another about the central region of the interior passage, the channels being in fluid communication with the central region of the interior passage. Kotthaus et al. does not explicitly disclose a plurality of twisted pairs of conductors; and the number of channels being greater than the number of twisted pairs of conductors (Kotthaus et al. states that the conductor...can be of any desired construction, see column 2 lines 20-21 according to the numbering in the middle). However, Arpin et al. teaches of a plurality of twisted pairs of conductors (16, four pairs of twisted conductors); and the number of channels (5 or 6 as disclosed in figures 1-3 in Kotthaus et al.) being greater than the number of twisted pairs of conductors (see figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the four twisted pairs of conductors of Arpin et al. with the device of Kotthaus et al. in order to provide a telecommunication cable.

Re claim 104, Kotthaus et al. substantially discloses a data transmission cable comprising:

data transmission conductors (3), each of the data transmission conductors being covered by a separate insulation layer (see figure 2 for example); and

a jacket (5, casing) defining an interior passage (unnumbered) that extends along a length of the jacket, the interior passage including a central region (unnumbered holding 2 for example) and a peripheral region, the core (2 for example) being located within the central region of the interior passage, the peripheral region of the interior passage including a plurality of air channels (8, air chambers) that are circumferentially spaced relative to one another about the core, the air channels being in fluid

communication with the central region, the jacket including an inner portion (8 and 7 for example) at which the channels are defined and an outer portion (6 for example) that surrounds the inner portion. Kotthaus et al. does not explicitly disclose four twisted pairs of conductors; the plurality of data transmission conductors being twisted around each other to define a core; and the number of chamber of channels being greater than the number of twisted pairs of conductors (Kotthaus et al. states that the conductor...can be of any desired construction, see column 2 lines 20-21 according to the numbering in the middle). However, Arpin et al. teaches of a plurality of twisted pairs of conductors (16, four pairs of twisted conductors); and the number of channels (5 or 6 as disclosed in figures 1-3 in Kotthaus et al.) being greater than the number of twisted pairs of conductors (see figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the four twisted pairs of conductors of Arpin et al. with the device of Kotthaus et al. in order to provide a telecommunication cable. And examiner takes official notice that it is well known to have the plurality of data transmission conductors being twisted around each other to define a core (see applicant's admission in original specification page 1 paragraphs 003 and 004.

Re claim 114, Kotthaus et al. substantially discloses a data transmission cable comprising:

a plurality of data transmission conductors (3); and

a jacket (5, casing) defining an interior passage (unnumbered), the interior passage including a central region (unnumbered holding 2 for example) and a peripheral region, the plurality of data transmission conductors being positioned within

the central region, the jacket including an inner portion (8 and 7 for example) and an outer portion (6 for example), the inner portion of the jacket including a plurality of projections (7) that project inwardly from the outer portion of the jacket, the projections having inner ends that define an outer boundary of the central region of the interior passage, the jacket defining air channels (8, air chambers) between the projections, the air channels each being visible when the data transmission cable is viewed in transverse cross-section, the air channels forming the peripheral region of the interior passage. Kotthaus et al. does not explicitly disclose a plurality of twisted pairs of conductors; the projections having inner free ends; and the number of chamber of channels being greater than the number of twisted pairs of conductors (Kotthaus et al. states that the conductor...can be of any desired construction, see column 2 lines 20-21 according to the numbering in the middle). However, Arpin et al. teaches of a plurality of twisted pairs of conductors (16, four pairs of twisted conductors); and the number of channels (5 or 6 as disclosed in figures 1-3 in Kotthaus et al.) being greater than the number of twisted pairs of conductors (see figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the four twisted pairs of conductors of Arpin et al. with the device of Kotthaus et al. in order to provide a telecommunication cable. Also note that, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the end of the projections free in order to have a separate structure, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tessier et al. is cited to show various cable arrangements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jinhee J Lee whose telephone number is 571-272-1977. The examiner can normally be reached on M, T, Th and F at 6:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A Reichard can be reached on 571-272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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jjl